Bloodborne Pathogens Training

Meeting WISHA Training Requirements

- To meet the WISHA training requirements for bloodborne pathogens training, you must include information specific to your worksite. See the notes section of the slides *(PowerPoint Notes Pages view)*.
- Preview this program and include your specific workplace information before conducting the training.
- Distribute or make accessible to employees copies of the Occupational Exposure to Bloodborne Pathogens Chapter 296-823 WAC.
- You must keep an attendance roster for your records to document training.

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Bloodborne Pathogens Training

How To Use This PowerPoint Program

- Users with PowerPoint can download, edit, and use the program for training with a laptop and multimedia projector.
- Additional information is also found in the Notes section accompanying the slides. You can read the text in quotations found in the Notes section or use your own words.
- If you want to print out this program, the PDF file uses less computer memory and prints faster.

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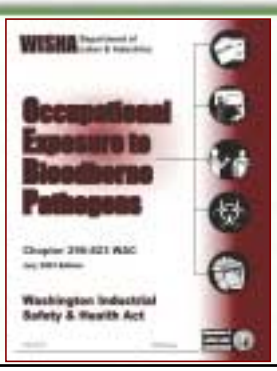
Bloodborne Pathogens Training

Feb. 2004

Bloodborne Pathogens Training

Washington Industrial Safety & Health Rules

Chapter 296-823 WAC



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Course Objectives

- What are Bloodborne Pathogens (BBPs)?
- Why are they harmful?
- How can I protect myself?
- What is *(fill in your company name here)*'s Exposure Control Plan?

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General overview

PATHOGEN: a microorganism that can cause disease

Examples of Illnesses Pathogens Cause

• **Viruses**	AIDS, Hepatitis B, colds, flu, Herpes
• **Bacteria**	Intestinal diseases, Tuberculosis, Gonorrhea
• **Fungi**	Athlete's foot, Farmer's lung, Asthma/allergies
• **Parasites**	Giardiasis, Malaria, Trichinosis

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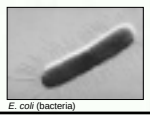

E. coli (bacteria)

Trichinella (parasite)

Courtesy of Centers for Disease Control and Prevention

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Transmission of Diseases

Organisms can enter the body via

- Inhalation
  Air

Courtesy of Centers for Disease Control and Prevention

- Ingestion
  Contaminated food, water

- Contact
  Bloodborne

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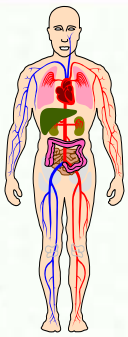
Bloodborne Pathogens (BBPs)

Present in

Blood

or



Other
Potentially
Infectious
Materials

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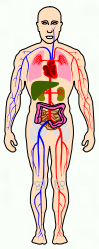
Bloodborne Pathogens (BBPs)

OPIM

- semen
- vaginal secretions
- body fluids such as pleural, cerebrospinal, pericardial, peritoneal, synovial, and amniotic
- saliva in dental procedures (if blood is present)
- any body fluids visibly contaminated with blood
- body fluid where it is difficult to differentiate



- any unfixed tissue or organ (other than intact skin) from a human (living or dead)
- HIV- or HBV-containing cultures (cell, tissue, or organ), culture medium, or other solutions
- blood, organs, & tissues from animals infected with HIV, HBV, or BBPs

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Transmission of BBPs

Bloodborne Pathogens can enter your body through

- a break in the skin (cut, burn, lesion, etc.)
- mucus membranes (eyes, nose, mouth)
- sexual contact
- other modes

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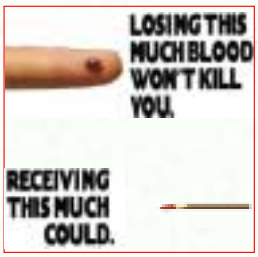
Transmission of BBPs

Risk of infection depends on several factors:



Courtesy of Owen Mumford, Inc.

- The pathogen involved
- The type/route of exposure
- The amount of virus in the infected blood at the time of exposure
- The amount of infected blood involved in the exposure
- Whether post-exposure treatment was taken
- Specific immune response of the infected individual

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Bloodborne Pathogen Diseases

Some examples of bloodborne pathogens:

- Malaria
- Syphilis
- Brucellosis
- Leptospirosis
- Arboviral infections
- Relapsing fever
- Creutzfeld-Jakob Disease
- Viral Hemorrhagic Fever

Main bloodborne pathogens and diseases of concern	
• Hepatitis B Virus (HBV)	**– Hepatitis B**
• Hepatitis C Virus (HCV)	**– Hepatitis C**
• Human Immunodeficiency Virus (HIV)	**– AIDS**

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Viral Hepatitis - General Overview

- Virus attacks liver ➞ inflammation, enlargement, and tenderness
- Acute and chronic infections
- Possible liver damage ranging from mild to fatal

The liver is a large, dark red gland located in the upper right abdomen behind the lower ribs. It functions in removing toxins (poisons) from the blood, in the digestion of fats, and in other body processes.

Courtesy of Schering Corporation

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HBV - Hepatitis B

General Facts

- Hearty - can live for 7+ days in dried blood
- 100 times more contagious than HIV
- Approximately 78,000 new infections per year (2001)
- 1.25 million carriers
- 5,000 deaths/year
- No cure, but there is a preventative vaccine

Courtesy of the Centers for Disease Control and Prevention

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HBV - Hepatitis B

Clinical Features

Incubation period	Average 60-90 days Range 45-180 days
No sign or symptoms Acute illness (jaundice)	30% 30%-50% (≥5 years old)
Chronic infection (carrier)	2%-10% (of infected adults)
- Premature death from chronic liver disease	15-25% (of chronically infected)
Immunity	Protected from future infection

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HBV - Hepatitis B

Symptoms

- flu-like symptoms
- fatigue
- abdominal pain
- loss of appetite
- nausea, vomiting
- joint pain
- jaundice

Normal eyes

Jaundiced eyes

Courtesy of the Centers for Disease Control and Prevention

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HBV - Hepatitis B

HBV Transmission

- Unprotected sex with multiple partners
- Sharing needles during injecting drug use
- From infected mother to child during birth
- Sharps/needle sticks

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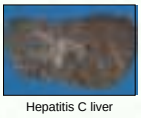
HCV - Hepatitis C

General Facts

- The most common chronic bloodborne infection in the U.S.
- 3.9 million (1.8%) Americans infected; 2.7 million chronically infected
- 25,000 new infections per year (2001)
- Leading cause of liver transplantation in U.S.
- 8,000-10,000 deaths from chronic disease/year
- No broadly effective treatment
- No vaccine available

Healthy human liver



Hepatitis C liver

Copyright 1998 Trustees of Dartmouth College

A healthy human liver contrasted with a liver from an individual who died from hepatitis C. Note the extensive damage and scarring from chronic liver disease.

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HCV - Hepatitis C

Clinical Features

Incubation period		Average 6-7 weeks Range 2-26 weeks
No sign or symptoms		80%
Acute illness (jaundice)		≤20% (Mild)
Chronic infection	Age-related	75%-85%
Chronic liver disease	Age-related	10%-70% (most are asymptomatic)
Deaths from chronic liver disease		1%-5%
Immunity		No protection from future infection identified

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HCV - Hepatitis C

Symptoms

- flu-like symptoms
- jaundice
- fatigue
- dark urine
- abdominal pain
- loss of appetite
- nausea

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HCV - Hepatitis C

HCV Transmission

Courtesy of the Centers for Disease Control and Preventionc

- Injecting drug use
- Hemodialysis (long-term)
- Blood transfusion and/or organ transplant before 1992
- From infected mother to child during birth
- Occupational exposure to blood - mostly needlesticks
- Sexual or household exposures - rare

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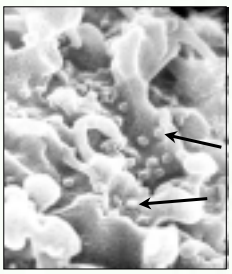
Human Immunodeficiency Virus (HIV)

General Facts

- Fragile – few hours in dry environment
- Attacks the human immune system
- Cause of AIDS
- >1 million infected persons in U.S.
- No cure; no vaccine available yet



Courtesy of the Centers for Disease Control and Prevention (CDC)

HIV - seen as small spheres on the surface of white blood cells

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Human Immunodeficiency Virus (HIV)

HIV Infection → AIDS

- Many have no symptoms or mild flu-like symptoms
- Most infected with HIV eventually develop AIDS
- Incubation period ≈10-12 yrs
- Opportunistic infections & AIDS-related diseases - TB, toxoplasmosis, Kaposi's sarcoma, oral thrush (candidiasis)
- Treatments are limited; do not cure

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Human Immunodeficiency Virus (HIV)

HIV Transmission

- Sexual contact
- Sharing needles and/or syringes
- From HIV-infected women to their babies during pregnancy or delivery
- Breast-feeding
- Needlesticks

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Transmission of BBPs

Occupational Exposure

- means reasonably anticipated skin, eye, mucous membrane, or parenteral (piercing of the skin) contact with blood or OPIM that may result from the performance of an employee's duties

Exposure Incident

- is a specific contact with blood or OPIM that is capable of transmitting a bloodborne disease

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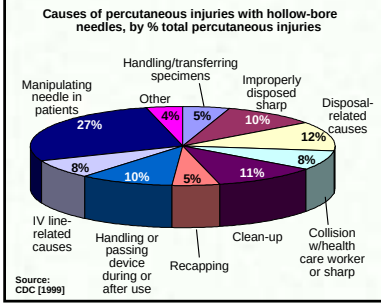
Health Care Workers and BBPs

Occupational Transmission



- Most common: needlesticks
- Cuts from other contaminated sharps (scalpels, broken glass, etc.)
- Contact of mucous membranes (eye, nose, mouth) or broken (cut or abraded) skin with contaminated blood

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Health Care Workers and BBPs

Occupational Transmission

Risk of infection following needlestick/cut from a positive (infected) source:

- HBV: 6%-30%
- HCV: 1.8% (range 0%-7%)
- HIV: 0.3%

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Exposure Control Plan

To eliminate/minimize your risk of exposure

- Exposure determination
- Exposure controls
- Training and Hazard Communication
- Hepatitis B Vaccine
- Post exposure evaluation & follow-up
- Recordkeeping

Located at: *(state exact location(s))*

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Exposure Determination

Who is at risk on-the-job?

In which job classifications here are ...

- All employees occupationally exposed?
- Some employees occupationally exposed?
  - What are the tasks with exposure?

Determine exposure without considering the use of PPE.

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Exposure Determination

The following are job classifications in our establishment in which **ALL** employees have occupational exposure to bloodborne pathogens:

Job Title	Department/Location
(example: Phlebotomist)	*(example: Clinical Lab)*

The following are job classifications in our establishment in which **SOME** employees have occupational exposure to bloodborne pathogens:

Job Title	Department/Location	Task/Procedure
(example: Housekeeper)	*(Environmental services)*	*(Handling Regulated Waste)*

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Exposure Controls

Reducing your risk

- Universal precautions *(or equivalent system*)*
- Equipment and Safer Medical Devices
- Work practices
- Personal protective equipment
- Housekeeping
- Laundry handling
- Hazard communication - labeling
- Regulated Waste




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Exposure Controls

UNIVERSAL PRECAUTIONS

– A system of infection control:

TREAT **ALL HUMAN BLOOD** AND **OPIM** AS IF KNOWN TO BE INFECTIOUS WITH A BLOODBORNE DISEASE.

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Exposure Controls

Equipment and Safer Medical Devices

- Physical guard

Sharps disposal containers

- Closable
- Puncture-resistant
- Leak-proof
- Labeled or color-coded
- Upright, conveniently placed in area where sharps used
- DO NOT OVERFILL!

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Exposure Controls

Equipment and Safer Medical Devices

• Barrier

Shields

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Exposure Controls

Equipment and Safer Medical Devices

• Environmental Controls

Ventilation hood

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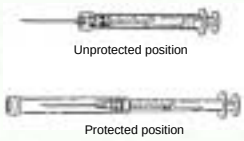
Exposure Controls

Equipment and Safer Medical Devices

• Other Devices

Safer Medical Devices

- Sharps with engineered sharps injury protections (SESIP)
- Needleless systems
- Self-blunting needles
- Plastic capillary tubes



Example of needle guard with protected sliding sheath that is pushed forward after use and locks (with some designs the shield must be twisted to engage the lock).

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Exposure Controls

Safe Work Practices

Do the job/task in safer ways to minimize any exposure to blood or OPIM:

- Don't bend, recap, or remove needles or other sharps
- Don't shear or break needles
- Place contaminated reusable sharps immediately in appropriate containers until properly decontaminated

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Exposure Controls

Safe Work Practices

- Do not pipette or suction blood or OPIM by mouth.
- Wash hands after each glove use and immediately or ASAP after exposure.
- Remove PPE before leaving work area.

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Exposure Controls

Safe Work Practices

- Do not eat, drink, smoke, apply cosmetics or lip balm, or handle contact lenses in any work areas where there is the possibility of exposure to blood or OPIM.
- Do not place food or drink in refrigerators, freezers, shelves, cabinets, or on countertops or bench tops in any work areas.

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Exposure Controls

Safe Work Practices

Clean-up of spills and broken glassware/sharps contaminated with blood or OPIM

- Wear protective eyewear and mask if splashing is anticipated.
- Remove glass and other sharps materials using a brush and dust pan, forceps, hemostat, etc. **Do not use your hands.**
- Properly discard all materials into a sharps or puncture-resistant biohazardous waste container.
- Use paper/absorbent towels to soak up the spilled materials.

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Exposure Controls

Safe Work Practices

Clean-up of spills and broken glassware/sharps (cont.)

- Clean the area with 10% bleach or EPA-registered disinfectant.
- Saturate the spill area with disinfectant. Leave for 10 minutes (or as specified by product manufacturer) or allow to air dry.
- Properly dispose of paper towels and cleaning materials into proper waste containers.

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Exposure Controls

Personal Protective Equipment (PPE)

You must wear all required PPE. *(State your company's name)* provides you with the following PPE at no cost:

- Gloves
- Lab coats
- Gowns
- Shoe covers
- Face shields or Masks and eye protection
- Resuscitation devices

PPE Contact: *(name of responsible person or department)*

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Exposure Controls

Personal Protective Equipment (PPE)

• Gloves

Boxes of latex gloves in glove dispensing rack

- Latex
- Nitrile
- Vinyl
- Utility

Nitrile and vinyl gloves

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Exposure Controls

Personal Protective Equipment (PPE)

Remove gloves safely and properly

- Grasp near cuff of glove and turn it inside out. Hold in the gloved hand.
- Place fingers of bare hand inside cuff of gloved hand and also turn inside out and over the first glove.
- Dispose gloves into proper waste container.
- Clean hands thoroughly with soap and water (or antiseptic hand rub product if handwashing facilities not available).

video clip

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Safe and proper glove removal

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Exposure Controls

Personal Protective Equipment (PPE)

• Protective clothing

- Lab coat
- Gown
- Apron
- Surgical cap or hood
- Shoe cover or boot
- Fully encapsulated suit

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Exposure Controls

Personal Protective Equipment (PPE)

• Eye-Face Protection and Masks

- Safety glasses with side shields
- Splash goggles
- Face shield
- Mask

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Exposure Controls

Personal Protective Equipment (PPE)

• Resuscitation Devices

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Exposure Controls

Housekeeping

Maintain a clean and sanitary workplace

- Written cleaning and decontamination schedule and procedures
- Approved disinfectant – bleach, EPA-approved
- Contaminated waste disposal methods
- Laundry

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Exposure Controls

Laundry

- Contaminated articles: *(list items that are laundered)*
- Handle as little as possible
  - Bag/containerize where used
  - Don't sort or rinse where used
  - Place in leak-proof, labeled or color-coded containers or bags
- Wear PPE when handling and/or sorting:
  - Gloves
  - Gown
- Schedule *(Time, location)*

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Exposure Controls

Communication of Hazards

Biohazard Labels and Signs

- Must have biohazard symbol
- Labels attached securely to any containers or items containing blood/OPIM
- Red bags/containers may substitute for labels
- Signs posted at entrance to specified work areas

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Exposure Controls

Regulated Waste

- Liquid or semi-liquid blood or OPIM
- Contaminated items that would release blood or OPIM in a liquid or semi-liquid state if compressed
- Items caked with dried blood or OPIM that are capable of releasing these materials during handling
- Contaminated sharps
- Pathological and microbiological wastes containing blood or OPIM

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Exposure Controls

Regulated Waste - Containers

- Easily accessible
- Labeled or color-coded
- Leak-proof, closeable
- Puncture-resistant for sharps
- Replaced routinely (do no overfill!)

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Exposure Controls

Regulated Waste - Containers

- Close immediately before removing or replacing
- Place in second container if leaking possible or if outside contamination of primary container occurs
- If reusable, open, empty, and clean it in a manner that will not expose you and other employees

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Hepatitis B Vaccine

- No cost to you
- 3 shots: 0, 1, & 6 months
- Effective for 95% of adults
- Post-vaccination testing for high risk HCW
- Post-exposure treatment (if not vaccinated)
  - Immune globulin
  - Begin vaccination series
- If decline, must sign Declination Form
  - vaccine available at later date if desired

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Exposure Incident

If you have an exposure incident to blood or OPIM, immediately do the following:

- Thoroughly clean the affected area
  - Wash needlesticks, cuts, and skin with soap and water
  - Flush with water splashes to the nose and mouth
  - Irrigate eyes with clean water, saline, or sterile irrigants
- Report exposure to *(supervisor, person or department responsible for managing exposures, etc.)*; fill out an Incident Report Form

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Post-exposure evaluation

***(State your company's name)*'s Responsibility:**

- Provide immediate post-exposure medical evaluation and follow-up to exposed employee:
  - At no cost
  - Confidential
  - Testing for HBV, HCV, HIV
  - Preventive treatment when indicated
- Test blood of source person if HBV/HCV/HIV status unknown, if possible; provide results to exposed employee, if possible

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Post-exposure evaluation

***(State your company's name)*'s Responsibility: (cont.)**

- Provide exposed employee with copy of the evaluating health care professional's (HCP) written opinion within 15 days of completion of evaluation
- Provide employee with information about laws on confidentiality for the source individual
- Provide post-exposure treatment as needed, including counseling

HCP: *(state name of HCP)*

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Recordkeeping

Medical Records

- Confidential
- Hepatitis B vaccination and post-exposure evaluations
- HCP's written opinions
- Information provided to HCP as required
- Maintain for length of employment + 30 years

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Recordkeeping

Training Records

- Dates
- Content summary
- Trainer name & qualifications
- Attendee's names & job titles
- Maintain for 3 years

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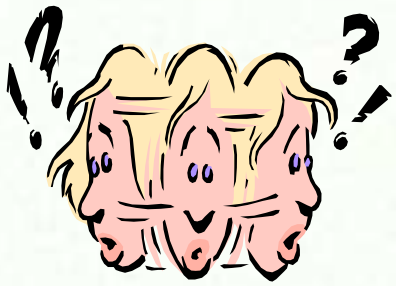
Any Questions?



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